

# HARBORTON COMBUSTION GAS TURBINE PLANT

## FACT SHEET

### Combustion Gas Turbines

Four Turbo Power & Marine Systems TP4-2 Twin Pacs  
Eight FT4C-1DF Pratt & Whitney gas turbine engines

Performance:	30°F Peak	80°F Base
Oil fuel (gal/hr)	21,764	17,113
Natural gas (therms/hr)	31,718	24,226
Electric output (kW)	254,000	194,000
Net heat rate (Btu/kWh)	11,250	11,600

#### Engine facts:

Shaft hp (excl. losses) 44,300 33,700 (42,100 hp @ 30°F, Base)  
Weight: 18,100 lbs.  
Length: 327.5 in.  
Exhaust elbow diameter: 76.3 in.

Silencing: NEMA level D at 1600 ft.

"Maximum residential" treatment

Eight inertial separator inlet air filters

Four electric machinery 71,000 kVA air-cooled generators

Compressed air starting by one 100-hp air turbine each engine

Normal start time: 8 minutes

Emergency start time: 3 minutes, 15 seconds

Two 95,000 kVA, FOA, Wagner 13.8 - 115-kV generator transformers

Twin Pac dimensions with maximum residential silencing:

Length: 103.0 ft.

Width : 20.5 ft.

Height: 40.7 ft.

Plant area: 440 ft. by 320 ft., 3.2 acres

Total site area: 44 acres fenced including substation and tank farm

77 acres total property owned

### Fuel Handling/Storage Facilities

Two 94,000 bbl fixed-roof floating-pan welded steel tanks

Oil delivery by pipeline, truck and railroad

Southern Pacific Pipeline Company connection by 9000-ft.,

8-inch pipe can deliver 70,000 gal/hr

Tank truck unloading station will empty six 8000-gal trucks  
in 20 minutes

Railroad tank car unloading station will empty twenty-six

20,000-gal cars simultaneously in 4 hours

Unloading pump capacity 2200 gpm

Natural gas delivery by 16-inch pipeline connection to Northwest Natural

Gas Company contract delivery rate limit 30,000 therms/hr

### Substation

Three 115,000-volt subtransmission lines to the PGE Portland area system

Two 115-12.5-kV distribution substation transformers (16,800 and 8400 kVA)

Three 12.5-kV distribution feeders

NHW 6/14/73

(Revised)